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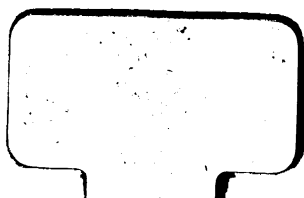
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HARMONY
OF THE BIBLE
with
Experimental
Physical Science

REV. ARTHUR RIGG M. A.



THE
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Experimental Physical Science.



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Experimental Physical Science.

A
COURSE OF FOUR LECTURES
BY
THE REV. ARTHUR RIGG, M.A.
(CHESTER.)



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PREFACE.

THE Reader of the following pages will find the subject of them worthy of more extended development. The writer is not aware of other attempts to show "The Harmony of the language of the Bible with Experimental Physical Science." In the Bridgewater Treatises and similar works, "The Wisdom, Goodness, and Power of God as manifested in Creation" have been ably and almost exhaustively discussed. These topics are only incidentally alluded to in the present volume. Indeed, selections from what examination and research seemed to show was an increasing store of illustrations from recent advances in

Experimental Physical Science sufficed for the purpose. There are doubtless many omissions ; the field is an extensive one, and he who searches for flowers of a particular class where the variety is great and the growth luxuriant is sure to leave for others an abundant gleanings. Although such may be the case, yet that need not diminish the satisfaction derived from the examination and enjoyment of those which may at any time be collected.

If each who reads elaborates for himself those divisions to which taste or study in other channels may have directed his attention, portions of the outlines now presented will be profitably filled in, and thus views in relation to Physical facts to which Science introduces her students will add to an appreciation of Scripture truths.

No effort has been made to invest with undue importance any illustration, nor has language been used to give a fictitious value

to weak statements. Truth, and therefore simplicity, have been chiefly regarded, and the writer sincerely hopes that to some the reading may be as profitable and pleasant as the searching and collecting have been to himself. The pen of another expresses his feelings in this respect more ably than his own can do, and therefore he adopts words which he cannot improve.

“Could the Author flatter himself that any one would take half the pleasure in reading the following pages which he has taken in writing them he would not fear the loss of his labour. The employment detached him from the hurry and bustle of life; vanity and vexation flew away for a season, care and disquietude came not near his dwelling. He arose fresh as the morning to his task; the silence of the night invited him to pursue it, and he can truly say that food and rest were not preferred before it. Every illustration improved upon acquaintance with it and

no one gave him uneasiness but the last ; for then he grieved that his work was done. Very pleasantly did the hours spent on these meditations pass and moved smoothly and swiftly along, for when thus engaged he counted no time. They are gone but have left a relish and a fragrance upon the mind, and the remembrance of them is sweet."

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6. "It goeth forth from the uttermost part of heaven, and runneth about unto the end of it again : and THERE IS NOTHING HID FROM THE HEAT THEREOF."

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HEAT—*continued.*

PSALM xix. v. 5, 6.

5. "In them hath He set a tabernacle for the Sun : which cometh forth as a bridegroom out of his chamber, and rejoiceth as a giant to run his course.

6. "It goeth forth from the uttermost part of the heaven, and runneth about unto the end of it again : and THERE IS NOTHING HID FROM THE HEAT THEREOF."

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"God, who didst teach the hearts of thy faithful people, by the sending to them the light of thy Holy Spirit ; Grant us by the same Spirit to have a right judgment in all things, and evermore to rejoice in his holy comfort ; through the merits of Christ Jesus our Saviour, who liveth and reigneth with thee, in the unity of the same Spirit, one God, world without end. *Amen.*"

LECTURES.

LECTURE I.

HEAT.

PSALM xix. v. 5, 6.

5. "In them [*i.e.* the Heavens] hath He set a tabernacle for the Sun: which cometh forth as a bridegroom out of his chamber, and rejoiceth as a giant to run his course.

6. "It goeth forth from the uttermost part of Heaven, and runneth about unto the end of it again: and THERE IS NOTHING HID FROM THE HEAT THEREOF."

AN opinion is so generally prevalent—that the Ministers of Christ should preach Christ crucified, and Him only and alone—that it seems to those who hold it as though one were faithless to his calling who deviated from the practice. Granted—that in a Christian congregation, and on the Lord's day—Christ should be the beginning and ending—the golden thread intertwining and holding all

other threads in their places ; it is no less true that Christ can be preached by everything, and He may be found in everything. It is still further true :—that he who so concentrates attention upon any one work, to the exclusion of all other works, is likely to obtain very defective views of the purposes and utilities of the work considered. This mental centralization is perhaps peculiar to professing Christians of recent centuries. It certainly is not in accordance with that universality of comprehension and felicity of adaptation which characterized the teachings of the Apostles, and especially and above them of Jesus Christ Himself.

Call to mind how Nature was ever furnishing Him with texts, and that not only in set and pre-determined addresses, but in the casual incidents which passing circumstances presented. If the Apostles did not so with equal frequency ; it may be, that not only they were not as able as He, but that having a commission which had to be fulfilled in the face of much opposition and little sympathy, they seldom had opportunities for such teachings as are now referred to. Indeed they were not so needed, for the Apostles' work was a development

of that—the foundations of which had been laid by Jesus Christ.

If we look to the Old Testament, we find that the Special Revelations of God being, in process of time, restricted to one people, then the teachings are not always with the pomp and circumstance that attended the delivery of the Law, but in the still small ever-present voice of Nature.

For example, note the educative preparation of Moses: learned in all the Egyptian Court could teach, he yet needed for the office of Deliverer such qualifications as the Mountain and Desert life of a Shepherd give. How and when was he called from solitude to action? A bush burning and not consumed drew his meditative scientific and philosophic mind to contemplate the phenomenon.

When the Messiah Himself appeared; to whom was the fact made known? To those who were reading in God's ever-open book of Nature, and not to the learned in Man's wisdom,—to Astronomers in the far East, and to Shepherds in the immediate neighbourhood.

When the years were fulfilled how was He proclaimed? St. John the Baptist drew from those haunts where men most do congregate to the

solitary banks of the Jordan, the people who cared to hear of the coming Christ.

Religion is built upon the works of God—the awakening of the Soul is often through the material and visible ones. Natural Religion aptly precedes Revealed.

Abraham, Job, Moses, our blessed Lord Himself, and St. Paul brought a study and knowledge of Nature to bear upon the higher purposes of their lives.

Abraham and Job were ever dwelling amidst surroundings in which the voice of Nature was never silent. As to Moses, forty years of Mountain life prepared him to lead the Israelites. Jesus Christ Himself, how was He finally perfected for suffering? Forty days of Wilderness life completed His preparatory course. To qualify for Christian missionary work St. Paul, after his conversion, passed two or three years in Arabia (Gal. i. v. 17).

If Abraham was drawn by observation, Job was by experience, and Moses by experiment. Read the Sermon on the Mount; consider the Parables and Miracles of Jesus Christ, and how much He built upon Natural Phenomena will plainly appear. When St. Paul wrote to the Romans, how well in

the early chapters he leads unbelievers on to Christ through Natural Religion.

Those only can rightly value this aid to a saving faith, who have felt that

. "Nature never did betray
The Heart that loved her, 'tis her privilege
Through all the years of this our Life to lead
From joy to joy."

What we may call the closed Books of God, viz., His revelations in regard to the Spiritual and Eternal Welfare of the human race, are not concerned with what may be called the open Books, in which are written the Physical Laws of the Universe. That these Laws should be investigated and studied by men, is clear from many a passage in Holy Writ. The book of Job—the oldest of our Scripture Records—tells how much and oft he meditated upon the Works of God and was comforted.

The Science Student of this nineteenth century will find the Soul of heavenly Music slumbering in many a verse till waked and kindled by the skill which God permits to man.

Even Solomon in the midst of official duties applied his heart "To see the business that is done

upon the earth ; He beheld all the work of God, that a man cannot find out the work that is done under the Sun ; yea farther though a *wise* man think to know it, yet shall *he* not be able to find it" (Eccl. viii. v. 16, 17).

And our blessed Lord and Saviour Himself in what words and with what allusions did He preach to a mixed congregation, seeking to win Souls. In His first Sermon—the Sermon on the Mount, the very foundation of His public teaching—He advised His hearers to consider ; Salt, Candles, Treasures, Moths, Rust, Fowls of the air, Lilies and Grass of the Field, Fruit, Thorns, Figs, Thistles, Foundations of Houses, and Rain.

After such assurances, how wrong to neglect the study, and how equally wrong to look to the Bible for full information herein. It is like looking on Land for the Phenomena of Water, in the torrid Zone for Ice, in a garden for Trees of the Forest, in the splendours of a Palace for the homely thrifts of a Peasant.

Our duty is to be thankful that God permits men to read with the understanding certain pages of His Works, and it is very wrong to murmur because other pages are not so easily read. Human know-

ledge is at best but an alphabet of the Divine. The learned in Classic lore looks in amazement at the mysterious symbols and pursuits of the Mathematician, nevertheless he accepts his results in unquestioning faith. Students in every Science must in a kindred Spirit accept the revealed words of the Creator, thankful if from what is seen and known they can acquiesce in the unseen and mysterious ; for without mystery there can be no Faith and therefore no Religion. In Heaven is no mystery, and therefore in Heaven is no Faith and no Hope ; hence the emphatic conclusion of St. Paul :—"Now abideth Faith, Hope, Charity, these three ; but the greatest of these is Charity" (1 Cor. xiii. v. 13).

Let these illustrations suffice to warrant us at times turning our eyes from the Sun of Righteousness, that we may receive of His beams, tempered and toned by reflection, refraction, absorption, radiation, and polarization from all around us. And, without controversy, all around him brings the Christian to God.

What ! are we to dwell in this house of the world (so long a-preparing and so well prepared) and never notice the skill, the patience, the forethought, the suitability of all within and without—

the continuity, the permanence of its laws—the consequences and the causes? Is the great Creator and Sustainer of them not to be as much studied in His ever open books as men give to the study of men in the books of past ages and the newspapers of the present?

With these introductory remarks for the sake of those who rightly love to dwell in thought and heart with Christ, and in hope that we may be brought even nearer to Him by dwelling for a while upon one of the subjects suggested by our text, let us now seek in this channel to find how good, how perfect, how extensive, how enduring, how instructive, how harmonious, and how wise are the works of God.

The Psalmist's graphic and poetic description of the daily course of the Sun is worthy of a Laureate's pen in any country. There is, however, in the last few words of the text—" *There is nothing hid from the Heat thereof*"—more than matter enough for this discourse.

From the Sun comes that which renders this earth habitable by us. Blot it out, and you blot out all present life. One barren, bleak, waste

wilderness : no air, no water, no life—thus would be extinguished all that is fair—all now apparelled in celestial light—all now vocal with praise. What a change, yea, what we may call annihilation ! We shudder at the thought how that not only to this earth, but we believe to many other earths perhaps more worthy of a Creator's care, the Sun is essential.

Yet the day will surely come when the Sun *shall* be blotted out. Science very emphatically shows to her students that what she can do—if interpreted by the guiding finger of Faith in the Revealed Will of God—prepares man for this day.

As the down of a feather tells the way of the wind—as the electric toy of a child tells how lightning can destroy—as an acorn contains the oak—as the analysis of a rain-drop unfolds secrets of the ocean—so man's power to separate the Light from the Heat of the Sun enables him to accept in simple perfect Faith, with a consenting and approving understanding, a literal interpretation of Bible words. Without this perfect filial Christian Faith, how could he (unmoved) read of that glorious orb which all men love, and many almost worship, in the strong and awful phrases :—

“The Sun shall be turned into darkness” (Joel ii. v. 31 ; and Acts ii. v. 20). “I clothe the Heavens with blackness, I make sackcloth their covering” (Is. l. v. 3). And again, “The Sun became black as sackcloth of hair, and the Moon became as blood and the Heaven departed as a scroll when it is rolled together” (Rev. vi. v. 12, 14). God grant our child-like faith in Christ *here* may in that day find even such tribulation as this cannot “separate us from the love of Christ.”

But the Sun is essential to us. And this essentiality lies not so much in His presence as in His influence. It is so with Jesus Christ : we have never seen Him, our life in Him is in His influence over us : thus He and the Sun are as one.

Now though the influences of the Sun appear as one, they are really *three* : united and yet quite distinct, separate and yet but one.

There is a remarkable peculiarity and yet singular suitability in respect to the order of Creation as regards the Sun. That order (Gen. i.) is this,—*First Light—then* Land and Water—*then* Vegetable Life—the Sun—Animal Life—Human Life. The varied colours of Vegetation which so adorn our earthly dwelling place, are from Light. Light

therefore was created before Vegetation. Heat may call into activity the dormant life of the seed ; but in Creation's day there were no seeds thus to be developed. The law of like producing like did not exist and there was nothing on which to impress it even if it had existed. Hence Heat in regard to Vegetable Life was not needed. Essential, however, to that Life was Light, for let it be passed under the influence of Heat alone, and there is no beauty of colour in Foliage that Man should desire it.

When, however, the Creator was about to call into existence Animal Life—to which Heat was as essential as Light to Vegetable Life—then and not till then was the Sun made. His *obscure* Heat-rays not only prepared the Globe for that life so soon to be created, but were ready to contribute to sustaining it when created. David seems to have had some distinction such as this present in his mind when he wrote (Ps. lxxiv. v. 17) "The day is Thine, and the night is Thine, Thou hast prepared"—not, observe, the Light *of* the Sun but—"the Light *and* the Sun."

On this fourth day then Light and Solar Chemistry were associated with Heat and placed in the Sun to radiate thence to worlds which perhaps human

ken has not yet discovered, and to be returned from these worlds to other Suns and other Worlds, ever speeding on their swift way, never failing, never decaying, never waxing old. To us they come as *One*; so marked is the transition from darkness to light, that we have centered in Light the other two; just as we centre in "God" the Father Son and Spirit. God is One and yet Three in One. The Light of the Sun is One, and yet Three in One. The Three are HEAT, LIGHT, and ACTINISM.

With the Heat and Light of the Solar Beams we are all familiar; the Actinism of them you will recognize when it is considered that to it we are indebted for the faithful photographs of friends.

Let me now add that whilst these stream to us as One and from one source—the Sun—yet can this one Beam be divided. Modern Science can say to the waves of the Sun with more of authority than our English Canute said to the waves of the Ocean that dashed on his kingdom's shore—"hitherto shall Light come and no further," and then the waves of Heat speed on. Or he may say "here shall the waves of Heat be stayed," and then those of Light speed on.

The Christian cannot more completely allot to

Father, Son, and Holy Spirit, the respective offices each holds in relation to the salvation of man than can the experimental philosopher allot to the components of the Solar Beam the distinct offices they discharge in relation to those varied lives on earth, which, if they cannot call into being as an act of creation, they can at least develope, perpetuate, and sustain. To one of these elements—HEAT—the text asks our special notice.

It would be an omission not to lay stress at this very outset upon the circumstance that it is not the *Light* of the Sun “from which nothing is hid,” but it is the *Heat* thereof. Here is a distinction in phraseology, the marvellous accuracy of which modern Science confirms: How remarkable too, that whilst here—on Earth—the triumph of the Sun is—HEAT—yet nowhere in Scripture is this term applied to Heaven or Christ.

There is another singular illustration of the Heavenly Spiritual character of Light as distinct from Heat. Already has it been named. In the burning bush which drew Moses aside, there was Light but no Heat. The Bush burned but was not consumed. It was Light not Heat that won Moses.

With these oft references to Light, it is certainly remarkable that the Psalmist in the text uses the word *Heat* and not the word *Light*.

Speculative causes as to Solar Heat do not concern us ; the terrestrial effects of it do. To say that all work done on earth is done by Solar Heat, is a simple statement of truth. Every form of motion is sustained by the running down of some weight which the Sun has wound up ; even when we wind up the household clock it is Solar Heat that enables us to do so.

However various in manifestation, the essence of all Physical Power is the same. Man may reason, that when utilized it is destroyed—'tis an error, for no work of the Creator can be destroyed by the Creature. This is merely asserting in another form the truth so emphatically put before her members by the Church when at the burial of the dead, she borrows the language of St. Paul, and tells them (1 Tim. vi. v. 7), "We brought nothing into this world, and it is certain we can carry nothing out," and certain too that we can destroy nothing.

Let us pass from generalities to particulars—from the universal to the individual—from that

which is almost beyond the grasp of human intelligence, to that which we daily handle and see.

There is one of the effects of Solar Heat ; so silent, so imperceptible, so enormous, that very familiarity leads us to overlook it. I refer to its very great, yea, its almost omnipotent physical power. When we look at the works of men—when we stand amazed at the colossal bridges spanning chasms and rivers—when we see the productions of our manufactures—when the darkness of night is made as light as day—when we note the speed of our railways, and watch the all but speaking telegraph—when we see our merchandize transported to the ends of the earth—and all with so much of personal ease, we seem to have realised even more than Isaiah expected, when speaking of beasts he wrote : “A little child shall lead them ; and the sucking child shall play on the hole of the asp, and the weaned child shall put his hand on the cockatrice den.” (Isa. xi. v. 6-8.)

Wonderfully is this so in Physical Science. The hole of the asp, and the cockatrice den, are even homes of safety compared with those where the hands of the child-man are ever

playing. The gracious gift of the Creator—that man may exercise a controlling direction over Physical Laws—is lost sight of. In the stead, Man, proud man, dressed in a little brief authority, considers his directorial power as an inherited entailed possession with which to dally and make merry. Ignorance and unbelief are no sufficient excuses.

The Student in Science—he who through these laws knows and sees God—should glorify Him as God; otherwise he may become vain in his imagination, and his heart so darkened, that he cannot read the still higher revelations of the Creator's laws.

Truly the hands that take credit for doing all now enumerated, are as the hands of a child; but they do them not. All the hands do, is, in even a playful way, to direct the Power which God gives. The Power which does these works is *the HEAT of the Sun*.

So great is this silent power, so accumulative has it been in past ages, that we cannot measure it: as well attempt to count the drops in the ocean. Our ideas of power are so centered in ourselves, that we forget the Giver of all Power.

The Act of Creation was the work of God. The sustaining of things created is by the operation of laws whose permanence and continuity were secured at creation. One of these Laws assigns to HEAT—the development of terrestrial life and motion, and to Light the production of those colours which lead men—

“To praise the earth in beauty seen,
With garlands gay of various green.”

Of Light and its wonderful teachings we must hereafter learn the lessons.*

If we look to the work of Heat now—every blade of grass, every shrub, and every tree are ours because of Solar Heat. If we look to the work of Heat in past ages, where are the Giants of the Forest that then bowed their heads in silent worship? They have gone to their graves, and raised now again, they restore to our Fires, our Boilers, our Magnetism, and our Batteries, that Heat which for thousands of years has lain *literally* buried beneath the feet of Man. Shall we, at this Easter Season, see these trees of the primæval forests thus raised, and in serving man, return to the

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Creator the Heat by which they grew, and think that man shall not some day be also raised and restore to his Creator the life so freely lent to him.

“’Tis strange, ’tis passing strange, ’tis piteous,” that men can stand beside such cumulative evidences of a Resurrection, and not, like Trees of the Forest and Fields of Grain, bow their heads in humble adoration, hoping and praying that on some near or distant day they may be raised to that life which we believe is to be passed in the perpetual light of God’s presence.

When then we look at what HEAT, wrapped in the fibres of these recovered Forests and which came to them from the Sun in other days and thousands of years ago—is doing: when we consider that through its agency alone we on this little island of England are able to complete as much work in one day, as would require the united powers of all that dwell on this earth to do in the same time (without this stored up Solar Heat), then it must be admitted that exceeding great and glorious is the power thereof. With such a fact alone before us, we may say one universal *Amen!* after the Psalmist’s declaration: “There is nothing hid from the Heat thereof.”

That which has been, is, and shall be. The Sun to-day is as powerful in Heat as he was one thousand years ago. "It goeth forth from the uttermost part of the Heaven, and runneth about unto the end of it again"—for truly HEAT is indestructible by man. We may change its form. To-day it may appear as Electricity, and to-morrow as Power, but a time will come; it may be the same day, an early day or a distant day; and the Electricity and the Power will render back the Heat they for a while stored by.

What life is, we know not, God gives this, and God takes this away; but we do know that without Heat there is no earthly life. Look around and see; whence is the continued sustaining of the earthly life of man, of animals, and of vegetables—from the Heat of the Sun. Seed buried in the earth is hid from the light, but not from the heat of the Sun—this makes the germ to grow. We look at that germ in the presence of Heat, Light, or Actinism; mysterious and incomprehensible!—to prophesy its future, eludes the vigilance of every faculty and facility man can employ, yet we are sure there is ONE "in whose book all its future members are written" even

though we can detect "none of them." Yea! even more emphatically than this. Our forced Vegetation is the work of Heat. Mark how often wanting in colour, and in all that gives beauty to the Eye, this is. And why? Because whilst developed by the "Heat from which nothing is hid" it has grown; yet hidden from the Light, which at the same time left the Sun, there is no beauty of colour that we should desire it.

Beauty is from light alone. God is Light: Heaven is Light: Jesus Christ is Light: the Holy Spirit illumines: therefore the Holy Spirit is Light. In these is perfect Beauty. And such Beauty as this it is, which is to be to man a "joy for ever."

We live—on what? on the grass of the field and the herb of the garden, and the Heat from which, even in the seeds, these were not hid, transferred through food to us, enables us to think, to move, and to do. Humiliating reflection! if the life of man be regarded as an earthly life alone—that he lives this life by food which the Heat of the Sun *in these days* enables Vegetation to produce. In fact, his motive bodily power and the motive power of our steam-engines are one: *he* from present Solar Heat—*they* from a resurrection of

past Solar Heat. Each must feel within himself, that there is a Spirit telling of higher, and holier, and better, and brighter things. It must be so, and man must be immortal.

The very analogy of Fact is opposed to any Faith in the doctrine of no eternal Future. Lapse of time presents no difficulty, though the interval be as the longest secular one in Astronomy.

Even periods we express, when an "age" and not a "year" is the Unit of measurement, have not destroyed Heat. These buried Trees, through all the mysterious operations of continuous decay, retain HEAT—the very principle of their once Vitality.

"Changes wide and deep, and silently performed" have affected the surface of the Earth and all which it inhabit. But in the still chambers of the grave, the Spirit that gave the Life has remained true to its indwelling in the body in which it dwelt when that body stood erect and vital in the presence of the Source from whence the Spirit came. Corruption and darkness have not driven it away. When restored to the visible earth; then, in that state in which by the Creator's laws it should return to the home that gave it birth, man sees

and feels the Spirit passing by him, and ascending above.

'Tis worthy of deep thought, that every means utilized for Heat *alone* has in it a resurrectional and ascensional character. However much of materiality may be in the compound, the Chemist will assert that those elements are selected for Heat-giving which are apparently annihilated, and leave on earth "nor track nor trace behind."

It would seem that when the bonds of materialism are to be loosed, *Heat* is the agent which sets the imprisoned Spirit free. Does not the Bible teach us—"That the elements shall melt with fervent heat, the earth also, and the works that are therein shall be burned up." (2 Pet. iii. v. 10). Elijah "went up into Heaven in a chariot of fire," and when Elisha was encompassed (2 Kgs. vi. v. 17) we read "that the Mountain was full of horses and chariots of Fire."

Surely at this time, when the Church is keeping the Festivals of Easter, Ascension, and Whitsuntide, lessons full of deep instruction are to be had from these Physical resurrections and ascensions on earth. Is man to toy with a Giant which one day will destroy both him and all for which he

labours, and have neither knowledge nor feeling thereat? It may not, it ought not, it cannot be—even the warmth of our home fires warrants our indulging

“ The pleasing hope, the fond desire,
The longing after immortality.”

Look on which side you will; look not only on that for which we personally depend, but on the world in which we live and to the Heavens which declare the glory of God, and to the Firmament which sheweth His handy-work, and you will find “There is nothing hid from the Heat of the Sun.”

If thus the Heat of the Sun can penetrate—if thus the thing created can find out all creation—if it can speed on; building up or pulling down—now appearing as Power, and now as Velocity—if it brings health and motion to all—when or where are we to pause? How can we feel and see the power of Heat, and not feel that though unseen, God is there? Truly all things bring us to Him: As the Train carries us on our way—as we see the productions of our manufactories—as we watch the rippling or the rolling wave—as we warm our hands by the Winter's Fire—let us feel that we are in the

very Presence Chamber of the Heat of the Sun : and that, as thus we have from it all we value on earth, so we shall, if we rightly use His gifts of mercy and of love, have from the Triune God blessings higher, and brighter, and better far than even all those which the Triune Solar Beam gives.

Again, then, I add—Away with all doubts of a future Resurrection, when it is found that our very lives now are because of a Resurrection daily ministering to them, and accept in humility and with joy, a truth declared in the Old Testament and the New : “That eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love Him.” (Is. lxiv. v. 4 and 1 Cor. ii. v. 9.)

LECTURE II.

HEAT—*continued.*

PSALM xix. v. 5, 6.

5. "In them hath He set a tabernacle for the Sun: which cometh forth as a Bridegroom out of his chamber, and rejoiceth as a giant to run his course.

6. "It goeth forth from the uttermost part of the Heaven, and runneth about unto the end of it again: and THERE IS NOTHING HID FROM THE HEAT THEREOF."

WHATEVER may be the pursuits or aspirations of a people, there are always found amongst them those who love to read the Volumes the Creator has unrolled. As with books of men's writing so with these—some read easy parts only—others more difficult. Some do so for occupation—others for instruction. That all may learn, and yet no one expect to acquire a perfect knowledge; even Solomon "who spake three thousand Proverbs, and of trees, from the Cedar in Lebanon even to the hyssop that springeth out of the wall,

also of beasts and fowls and creeping things, and fishes" (1 Kgs. iv. v. 32, 33), strongly asserts. He tells us, "I gave my heart to seek and search out by wisdom concerning all things that are done under Heaven; this sore travail hath God given to the Sons of Man to be exercised thereby." (Eccl. i. v. 13.)

Thus, generations after generations are permitted by the Creator to unroll new volumes, and find how much there yet may be to learn from observing how much *they* are permitted to know of what preceding generations were ignorant or had less knowledge.

It is painful to reflect to how many such evidences of the prudent forethought and goodness of God are a sealed and even repulsive work. How painful to those who love to read this ever open Book (as plainly written by the finger of God as either the Old Testament or the New), is the uncharitable and ignorant taunt—that Science is antagonistic to Revelation! Such can *never, never* be the case. Consider the Psalmist's exclamation and declaration: "Oh! that men would praise the Lord": and for what does he thus pleadingly exhort them to praise Him? It is "for

His goodness, and for His wonderful works to the children of men." (Ps. cvii. v. 31.) If man dignifies a Work of his own as *wonderful*, what crowds flock to see it. Alas! although invited, "men regard not the works of the Lord, nor the operation of His hands," and although warned, yet they seem not to care for the consequence—the Lord "shall destroy them and not build them up." (Ps. xxviii. v. 5.)

That a superficial Student in Science, as well as in any other branch of knowledge, arrogates to himself authority, taking credit as a lawgiver where in truth he should be but a very humble Scholar, is often too painfully true.

This may be illustrated by reference to the singular and public displays of Mesmerism which embrace Phenomena beyond the ken of man. Here in truth, "men rushed in where Angels well might fear to tread," yet, to those who have thoughtfully and tremblingly in private witnessed the power of the Eye in Mesmeric operations or in its influence over Lunatics, Idiots, or Animals; indeed, may we not generalize and write—over the Human race—especially Children; how illustrative of that passage in the Psalms (xxxii. v. 8), "I will

guide thee with mine Eye." Counsel and guidance are not usually attributed to the Eye, and yet so far as is known of the Science to which reference is made, and of the treatment of those alluded to the power of the Eye is greater far than man can tell. Of this presently.

"He who intrudes into things he hath not seen vainly puffed up by his fleshly mind," is no learner in the School of either Religion or Science. His errors, and the Structures based upon them, no more take away one iota from the perfect and indestructible harmony which always must exist between the Revealed Will of God, and the Physical Laws of Creation, than does an oft repeated Falsehood take away the Truth. The Revealed Will of God is that which concerns the Spirit of Man and Eternity: The Physical Laws of Matter are those which concern the Body of Man and Time.

The latter are introductory to the former. An Examination and Study of them should qualify the head and heart to accept in humility with reverence and love, all that God has revealed in regard to those who in Spirit come to Him in the name and for the sake of Jesus Christ. Thus led onward and upward the humble Investigator of the Laws

of visible Nature must obviously be preparing himself for higher declarations of a Creator's Will.

If each Department of knowledge could enrol its lowly-minded, trusting disciples of our blessed Lord and Saviour Jesus Christ—that which Science might display would be no ignoble one.

Surely, if through Study knowledge is acquired, there can be for man no higher Study than the Works of God. And yet the Christian Youth of England are in the main directed to the writings of men about men. When the earnest zeal is noticed with which they investigate the Wars—the Heroes and the Histories of Greece and Rome, we can not but mourn, that under the guiding finger of Heaven-directed Science, the ever open pages of the Manuscripts of God are so little read. As men, let the first be done; but as Christian Parents, let us not permit the other to remain undone.

God grant that the day may not be distant when the boys and girls of our country may find

“Tongues in trees, books in the running brooks,
Sermons in stones, and good in everything.”

“There is nothing hid from the heat of the sun”
—Marvellous language! when it is considered that

to nought else is the phraseology applied except "the eyes of the Lord." Solomon writes, "The eyes of the Lord are in every place" (Prov. xv. v. 3): and Zechariah, "The eyes of the Lord run to and fro throughout the whole earth." (iv. v. 10.)

When a remarkable property of the human eye is considered, this coincidence of expression is very peculiar.

Dividing the solar radiation of Heat and Light into ten parts, nine of these are *obscure*, belonging to Heat alone, and producing no light whatever. Collecting such in a focus—even in their utter dark obscurity—metals placed there glow, some melt, wood burns. When, however, the visual apparatus of the eye takes the place of the flaming wood, these heat rays are powerless. The eye can reject or so absorb them as to pass through the ordeal of such an exposure and emerge uninjured. Thus preserved in the presence of an Agent which shall one day destroy the earth and all that it inhabit, how aptly even in this respect does Science illustrate and add force to the emphatic language of Scripture, which in the name of the least member of the body indicates the Omnipotence, the Omniscience, and the Omnipresence of God.

The consent of organised nature to the influence of the heat of the sun is universal. Let us note in a few instances what happens.

This Heat falls upon the Ocean. Within an apparently weary watery waste is an endless range of tabernacles in which Heat may dwell. Entrapped so soon as it enters water, and active as it would be in the rapid vaporization of that surface to the clouds above, then "the never-ceasing roll of ocean"—the ever-ebbing flowing tide—take the precious freight carrying it onwards and inwards and downwards. Thus the Ocean retains its fluid state.

The Creator having endowed water with the property of hoarding the largest amount of heat in the smallest possible space of any known substance, it goes with all its stores conveying that heat which in one part of the earth is in excess to another where it is deficient. Hence, the waters on the coasts of our island home are ever giving out the Heat stored in other climes—hence our fruits, our flowers, our evergreens, — hence our temperate winters, our modified summers, — hence much of our national character and our bodily frames.

Shall we every hour in this silent manner be receiving blessings which even the penetrating eye of

science cannot estimate, and shall we never in the same manner bestow any? Nature herself not here only but elsewhere and everywhere teaches that lesson of unostentatious liberality and humility, without which Christianity is but a name and Religion an hypocrisy.

From Heat so freely received and so freely distributed it may be inferred that the Creator has provided for animal life an inexhaustible storehouse of heat "in those unfathomable depths below which scoff man's search and scorn his sway," and where from other circumstances it might be concluded that such life could not be. Recent events in the pursuit of science have thrown light upon this. When the broken Atlantic cable was recovered from the deepest of the ocean-depths! strange phenomenon!—the matter clinging around it possessed animal life. How differently in the presence of this fact do we read the verse, "Behold, He spreadeth His light upon the ocean, and *covereth* the bottom of the sea" (Job xxxvi. v. 30). Till that broken cable lay on the deck of the ship the words—"He *covereth* the bottom of the sea"—had little if any precise and clear meaning. That there was

a bottom to the sea we all knew—but that that bottom *was covered*, and with animal life too, at such a depth we did not know.

When then the sun is shining where to our narrowed vision there are none to be cheered, none gladdened by His beams, when we might be tempted to ask : Why this waste ? let us be hushed and still. There is no waste. Let us rather take to ourselves the lesson the Ocean teaches ; let us receive it as one of the many not dissimilar ones our Blessed Lord taught to His early listeners in the Sermon on the Mount. Let us regard the Ocean as a living thing looking up to Heaven, and when journeying on to where man dwells, laden with its treasures of Heat, let us mark how in the distribution of its freight on our island shores

“The homage of its waves is given
In ceaseless worshipping.”

For—

“Do they not kneel upon the sloping sand
As bends the human knee ;
A beautiful and tireless band,
This priesthood of the sea ?”

To such waves thus “praying without ceasing” and discharging a duty to God and man, may not the ejaculation of Isaiah (xlvi. v. 18) apply :—

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“O that thou hadst hearkened to my commandments ! then had thy peace been as a river, and *thy righteousness as the waves of the Sea.*”

Do they not further teach the lesson our blessed Saviour taught—“by parable to this end—that men ought always to pray and not to faint”? (Luke xviii. v. 1).

“They that go down to the Sea in ships and do business in great waters ; these see the works of the Lord, and His wonders in the deep. For He commandeth and raiseth the stormy wind, which lifteth up the waves thereof” (Ps. cvii. v. 23-25).

This command the Creator laid upon the Heat of the Sun.

Within the range of the Sun's annual path the Heat so executes its delegated authority, and its operation is now so understood that sailors can rely upon the direction of the Wind. Navigation is not the dangerous uncertain process it was in 1492, when Columbus ventured far from Europe's shores in quest of another continent.

But how little in those days or even these has it been noticed that the Trade Winds and their attendant Phenomena are described in the Bible.

The record is thus :—"The Wind goeth toward the South and turneth about unto the North : it whirleth about continually, and the wind returneth again according to his circuits."—(Eccl. i. v. 6.)

Although these words were written about 2800 years ago, yet they well describe the prevailing winds of the temperate and torrid zones of the present day. So constant and consistent in this particular path has been the everywhere present and operating Heat of the Sun.

Thus the Heat of the Sun is spreading from shore to shore the knowledge of God, and bringing on that time of which St. John writes (Rev. xi. v. 15), "There were great voices in Heaven, saying ; The kingdoms of this world are become the kingdoms of our Lord, and of His Christ ; and He shall reign for ever and ever."

The word "North" occurring in the verse which has led to the remarks just made supplies two opposite but upon Scientific principles clearly intelligible Scripture illustrations. The more remarkable when we consider that to comparatively recent developments of the Sciences of Meteorology and Astronomy we are able to explain them.

In one place it is written, "Fair weather cometh

out of the North" (Job xxxvii. v. 22), and in another place, "the North Wind driveth away Rain" (Prov. xxv. v. 23). From the nature of the case modern Science tells us that thus it must be.

The cold North air as "it goeth toward the South" receives day by day more of the Heat of the Sun; thus its capacity for retaining moisture is increased. Hence that which without this increasing Heat might have fallen as Rain is carried along as invisible vapour.

The other purpose of illustration for which Scripture uses "the North" is of a very different character. You are doubtless aware that for many continuous weeks the North is in darkness—so far as direct Solar light is concerned—no Sun then shines there. Darkness is the very opposite to that Light in which God dwells; hence a place of darkness becomes a type and source of Evil. When it is remembered how limited Geographical knowledge was in the time of the Prophets, it is remarkable that Isaiah (xiv. v. 31), Jeremiah (i. v. 14), Ezekiel (iii. v. 5), Daniel (xi. v. 40), Joel (ii. v. 20), in varied Phrase draw "Evil from the North." It is worthy of note that the hordes who crushed the civilization of Europe came from the "North."

Milton—so well read in Scripture—beautifully uses the prophetic type for (*'Paradise Lost,'* 5 B. line 689) Satan, who loves Darkness, is described as plotting against Heaven's king "in the quarters of the North" and when attempting to enter Paradise he is said to do so "off the Mount that lies from Eden North." In the most solemn acts of our Public Worship the Priest stands with his back to the North.

The Clouds, the Snow, the Rain, the Hail, the Frost, and the Dew—these are ours through Heat.

When not stored in ocean Depths as rapidly as received from the Sun—then the Surface-Water becomes Vapour, and carrying off a large and abundant supply of Heat these vapoury trains are borne to other climes where Heat is less abundant. There they discharge their burden and the vapoury cargoes falling as liquid Rain return by Streams and Rivers to the place from whence they came, ready like material "angels of God sent forth to minister" to man, again to take up their load. This they do, and speed on the wings of the Wind, discharging their errands of mercy and health and love. Even this effect of Radiation the Bible

accurately describes, thus :—"All the Rivers run into the Sea ; yet the Sea is not full, unto the place from whence the Rivers come thither they return again." (Eccles. i. v. 7.)

They return not in vain ; by the way "they wet the thirsty earth with falling showers," and many a herb of the field, many an animal of the plain, and many a man in the city drink thereof with thankfulness and admit that God "does indeed crown the year with His goodness and that the clouds do indeed drop fatness" (Ps. lxxv. v. 12).

With what scientific clearness and accuracy Job has described both the cause of Rain, and the size of the drops (Job xxxvi. v. 27).

"The Lord maketh small the drops of Water ; they (i. e. the clouds) *pour down rain according to the vapour thereof.*"

To the all searching everywhere present Heat of the Sun we are indebted "for the shadow of a cloud over the parched land, for rivers in high places, for fountains in valleys, for pools of water in the Wilderness, and springs of water in dry land" (Is. xli. v. 18).

Job bewailing his sinfulness and anticipating that

“Days-man” who would intercede with God for him expresses a climax of intense despondency thus:—“If I wash myself with *snow-water*, and make my hands never so clean; yet shalt thou plunge me in the ditch, and mine own clothes shall abhor me” (Job ix. v. 30, 31). How very peculiar—“to wash in *snow-water*.” When Heat is withdrawn from cloudy vapour, and it becomes such a solid as Snow, all foreign bodies—even Air—are expelled, and water, *pure* and *and very soft*, results. For purposes of washing and cleansing such water is even at this day the very best. But for washing only: for drink, Snow-water is tasteless and sickly; for use in Steam-boilers, dangerous; because that Spirit, as we may call it, which imparts even vivacity to water has been withdrawn and the *life* of the water is not.

SNOW as well as SNOW-WATER has peculiarities in relation to Heat, a Scientific knowledge of which intensifies the Scriptural enquiry, “Hast thou entered into the treasures of the Snow?” How wonderful is this Bible of ours—think you—Men have yet “entered into the treasures” of the Bible?

In the book of Genesis great indignation and

suffering are expressed by a marked opposition between Drought and Cold on the same day. Jacob in reference to Laban's treatment of him exclaims:—"In the day the Drought consumed me and the Frost by night" (Gen. xxxi. v. 40). This word "*drought*" involves that scientific explanation of the Phenomenon in question, which is now generally received. "Drought" signifies the absence of that very invisible vapour in the Air which "floating upon wings of silence" guards from melting heat and killing cold. To those who have lived in the parts of the East and South where "the Soil is fire and the Wind is flame," the Frost at night is as hard to endure as the Heat by day; because there is no invisible vapour to shed around a protecting influence.

Let us turn for a brief space to the Phenomenon of Dew. Men's ideas of whence came Dew were very vague, very wide of the truth until the year 1818; indeed, until that year even an approximately satisfactory account of its cause is not to be found. That Dew was an imperceptible gentle Rain from a cloudless Sky was the self-contradictory but generally accepted explanation.

Now in the Historical and Prophetical Books of Scripture Dew is not confounded with Rain. Moses writes (Deu. xxxii. v. 2) of "*dropping* as the Rain and *distilling* as the Dew." In the books of Samuel and the Kings we read of there being "neither Dew nor Rain" (2 Sam. i. v. 21. 1 Kings xvii. v. 1). Hushai's counsel to Absalom was that the army should light upon him (i.e. the king) "as the Dew falleth upon the ground," viz., without warning—when all is fair and clear as in a cloudless sky. Job asks in one and the same verse (xxxviii. v. 28), "Hath the Rain a Father, or who hath begotten the Drops of Dew?" That Dew was of priceless value is very clear, for when Isaac blesses Jacob, the first words of the blessing are:—"God give thee of the Dew of Heaven" (Gen. xxvii. v. 28). And when Moses before his death blessed each tribe by name, the first words he said of Joseph are:—"Blessed of the Lord be his land for the precious things of Heaven—for the Dew" (Deu. xxxiii. v. 13). Isaiah's language is peculiar like "Dew in the *heat* of harvest" (xviii. v. 4).

When it is considered that Dew is literally *distilled* from the air nearest to the ground; that the heat of harvest, a calm atmosphere, and a

cloudless sky promote the deposition of it ; when it is further considered that men were ignorant of the cause of Dew until the present century, the adaptation of Scripture phraseology—accurate even according to present knowledge—is very peculiar.

It is the more singular that the cause of Dew remained so long unknown because Mist and Dew were before Rain.

Immediately after the Creation we read (Gen. ii. v. 5, 6) “The Lord God had not caused it to rain upon the earth, and there was not a man to till the ground : but there went up a MIST from the earth and watered the whole face of the ground.”

If the first chapter of the Book of Genesis and the first six verses of the second were separated from the inspired Volume and placed before a student well read in modern experimental physical science, he would testify to the considerate knowledge and thought and truthfulness of the Writer who thus in the beginning watered the ground from a *Mist* and not from *Rain*.

Although these now named are but samples, briefly described, from a large and varied store of the wondrous works of Heat, and of the harmony

between them and Bible phraseology, yet they teach very impressive, life-long, and eternity-enduring lessons.

When Man knows that he is indebted for so much of social blessing and personal comfort to causes in operation during years long past and in places far away, and to the invisible consequences of them in which he dwells, it seems as though his feelings were locked in an icy bond—as though all warmth of affection had left his breast—if he accept not in simple, child-like trust the Revelation of his Maker and his God.

Ought we not in the very earnestness of sincerity heartily to thank God, as our Church daily bids us do, “for our creation, preservation,” and we might add the unknown and unseen “blessings of this life”?

When great works are before us, it is only by an effort to bring them within the comprehension of our own minds that we can even approximately realise their magnitude.

How then can Man—weak, puny, tiny Man—grasp the majesty and the greatness of the works of God? Can flies in our rooms understand our actions? Can insects whose lives are but for a day comprehend the political atmosphere of the

world? When the Heavens, the Moon, and the Stars—works of the fingers of God—are considered, the inquiry is painfully natural: “What is Man that God should be mindful of *him*?” (Ps. viii. v. 3, 4; Heb. ii. v. 6).

Let us for a definitiveness of comprehension assign to a work of God and a work of Man a plain commercial value.

If with Coal alone was done the work of raising moisture from the ocean to give the Earth its one day's Rain there would be required more Heat than could be obtained from burning in one day all the coal raised in the course of the next three thousand years, assuming the annual produce to be at the present rate. Such, brought within our comprehension, is the silent daily work of one only of Nature's Laws.

Painfully humiliating but deeply instructive is the mechanical work of Man reduced to a similar standard. If he gave to bodily labour the period of his Manhood, he could not accomplish in a lifetime as much actual mechanical work as could be done by the Heat liberated in the burning of a load of coals.

“Vanity of vanities,” saith the Preacher; is not

all the bodily labour of Man on earth "Vanity"? Is there not in the contemplation and investigation of such works as those on which we have been meditating that which produces the deepest and highest of religious feelings? Does not the conviction steal over us that Man was made for nobler ends than simply earning his daily food "in the sweat of his brow"? Would you have Man thankful to God, and drawn to love, fear, worship, and obey his Creator—would you have him in thankfulness accept first the Bible as a needful and expected Revelation, and so be led to the Saviour Himself?—then, after that blessed and only Saviour's example, teach him to read Nature and the Bible too.

Dwell not on abstract truths of Scholastic Divinity, "knowing that *they* do gender strifes." The Saviour came not to the learned in Man's wisdom, but to the meek and lowly in heart.

All Scholastic learning *as such* is foolishness in the presence of Christ crucified. To the Poor the Gospel may be preached, and therefore it must be in a language understood by the Poor. Perplex with no arguments.

Point at the Clouds as they *silently* carry the refreshing showers—at the Rain as it *silently* falls in gentle softness—at the Mists as

“*Silently* lifted from the Rills,
Like the white wings of Prayer,
They lean above the ancient Hills,
As doing homage there”—

at the Dew-drops as they *silently* glisten in the morning light—at the Coals as *silently* radiating their heat from the winter's fire—at the Vapour as it *silently* rises from our cups of tea, and in these and THEIR SOLEMN SILENCE let Man humbly recognize with thanksgiving and gratitude “the still small voice of God.” Let him in the presence of one or all of these feel the reverence which Moses, Joshua, and Elijah felt (Ex. iii. v. 5; Josh. v. v. 14, 15; 1 Kgs. xix. v. 13); and let him see and own in his very heart of hearts that God is as much there as He was in the “Bush that burned and was not consumed,” or “in the still small voice at the entering of the cave;” and further, that SCIENCE as well as REVELATION has “Truths that wake to perish never.”

We need hardly press the question further, a few words will do it. Who can for a moment think

that a God so good and great beyond compare, would so plan for Man's present happiness and not desire his future too? It must be so : it must then be that what Nature, which is *material*, cannot tell of God and His plans for Man's *spiritual* welfare, He should reveal.

Who in the presence of the mighty truths carried even in a drop of Rain, can dare to speak of either his own power or knowledge? Who can count its journeys to and from the Ocean? who record its Angel-like works? Who can mark its varying freight of ministering Heat? Who hold it in the hollow of his hand, knowing that if that single drop availed itself of the load of Solar Heat it could carry, his instant death would be? Who can foretell its future?

Who can see, and feel, and think, and meditate upon all these things, and not see that the God of the Bible and the God of Nature are one?—that there are in the earliest inspired Writers clear allusions to physical truth ; that, in fact, there is a Harmony between the writings of Scripture and what may be called recently developed Scientific Principles?

The simple trust of childhood is the fittest attitude of Manhood : and what other way is there to Heaven—what more is required? Abana and Pharpar may be nobler in man's sight—but in quiet, simple, *silent* Jordan, are the healing virtues.

Man may elaborate, but all his Fabric melts as Snow in the presence of the mild and gentle warmth of comfort in the words—" Believe on the Lord Jesus Christ and thou shalt be saved."

LECTURE III.

MECHANICS.

JOB xii. v. 7, 8, 9.

7. "Ask now the beasts, and they shall teach thee; and the fowls of the air, and they shall tell thee :

8. "Or speak to the earth, and it shall teach thee; and the fishes of the sea shall declare unto thee.

9. "Who knoweth not in all these, that the hand of the Lord hath wrought this?"

BETWEEN the revealed will of God as contained in the Bible and those laws and facts which are apparent to all there must be perfect harmony; for, if not, we are confronted with a want of unity of purpose and design in the words and acts of the Creator. So satisfied was our blessed Lord that the works of Nature rightly observed necessarily led to an acceptance of the truths of Revelation that He often referred to them. Although consideration for others characterised all His teaching, yet, in a secondary point

of view, with how many of His miracles is not the Student in Physical Science specially interested :— Water into wine—walking on the Sea—calming the tempest—feeding multitudes—the obtaining of tribute money—the barren fig-tree—the miraculous draught of fishes.

If we turn to the Parables—those appeals to something real in life or nature from which moral or spiritual instruction may be drawn—on what does Jesus Christ lay the foundation of His teaching?—on observations of the Laws of Nature. The Sower—Tares—Leaven—Pearls—Sheep—Money—Vines—Seed—Fish ; these single words will be suggestive.

The comprehensiveness of the Sermon on the Mount, in regard to Physical Science, has been referred to on a former occasion (page 6).

Let the first Sermon Moses preached as the years of his life were closing (Deut. iv.) be examined. The people are directed not only to know the Law but to obey it, and then follows a very emphatic injunction—"They are never to forget," not observe the words their ears have heard, but—"the things their eyes have seen." Moses appeals to events so recent as those at Baalpeor,

because the people saw them, rather than deliverance from Egypt, because nearly all were dead who had witnessed this. But the things seen to be "*specially*" used as Lessons "for their Sons and their Sons' Sons," and enumerated from the tenth to the twentieth verse, are of a character truly Scientific.

Job, in the text and in other parts of the Book that bears his name, acts upon the same principle. A principle of teaching which not only pervades every book of Scripture from the most ancient to the closing one—but one which is capable of extension, and is extending as human knowledge extends. On such views as these every new Science, all advances in Art—whatever human investigation brings to Light—must of necessity lead man on to God. When one reflects upon the readiness with which our blessed Lord adapted all His teaching to the circumstances about Him we may be perfectly assured that had He lived now—Railways, Steam-boats, Telegraphs, Manufactories, Mines, Lighthouses, and such like, would have furnished many a never-to-be-forgotten lesson of Spiritual comfort and truth.

Away then with all thought that the presuming

hand of man, as it plays with the lightning and the storm—as it investigates new influences—as it descends below or ascends above, can bring back aught but Olive Branches of Peace from the Creator's Works.

Surely the greater presumption is : to doubt the power of God to withhold what He sees fit. Moses tells us (Deut. xxix. v. 29) "The Secret things belong unto the Lord God," and secret so long as He wills they must remain.

Would that those things which are apparent—those revealed as well as visible instructions which "belong unto us, and to our children for ever," were even read. It is no uncharitable reflection to say, that such reading would bring men nearer to the Saviour and the Father than will all the discussions about Antiquarian practices which unhappily prevail. PHYSICAL SCIENCE finds few indeed of her disciples wandering from the fold of Christ, compared with the numbers of those who under the banners of Biblical criticism, Ecclesiastical formalism, and Scholastic abstractions, lead many into by paths. Like Gideon in Ophrah (Jud. viii. v. 27), and Micah in Mount Ephraim (Jud. xvii. v. 1), these make for themselves temples,

and set up Altars with Ephod and Teraphim, and so—"Presumptuous and self-willed, are not afraid to speak evil of Dignities." (2 Pet. ii. v. 10).

By such a change in the tendencies of human thought as is thus indicated many an error would be avoided—many a calamity averted—Health would be promoted—Knowledge extended—Piety fostered—Faith strengthened and Hope assured.

Those who have trodden the regions of the Sciences of observation, have brought home "from dark unfathomed caves, gems of purest ray serene," which, like the (Sulphate) Solution of Quinine in the hands of an Experimentalist, reveal to an observant and practised eye the brilliant Fluorescent Beauty of lights and colours unknown and unseen before. *Thus* have Bible truths of unmarked worth become illustrious.

Now however whilst the object is the same the means are different—now we are to enter regions of Experiment, and bring home such truths and facts as may lead men to reflect thoughtfully and feelingly upon a mechanically constructed question asked by Isaiah (xl. v. 12) 2500 years ago: "Who hath measured the waters in the hollow of his

hand, and meted out Heaven with the span, and comprehended the dust of the earth in a measure, and weighed the mountains in Scales and the hills in a Balance?" This is a question to be clearly understood only by those familiar with experimental usages and terms.

If the truths with which Science deals are worthy of the Fountain whence they are drawn, whilst they admit with Isaiah, that "the inhabitants of the earth are as grasshoppers," they still say, "Onward! Forward! Excelsior!"

To erect elaborate scaffolding—to construct a colossal Steam Engine, shew works well begun; but if with the former no Building is raised and if to the latter no steam is supplied—the works are worthless however good the conception and execution of them may be.

So; if the Experimentalist labours only for Self-gratulation—for occupation—for worldly profit, he pauses at the threshold of a celestial palace, and like "a Peri at Heaven's gate," there "he may stand disconsolate."

SCIENCE properly so-called has no ignoble nor selfish ends: she is led onward and must from the very nature of the case be drawn upward,

resting not until Moses-like, in reverent humility, "She takes the Shoes from off her feet because *every* place on which *SHE* stands is holy ground." Then only has she achieved her true work and men may then welcome her as a Preacher to their Heart's best affections in that joyful refrain, "How beautiful are the feet" of Science thus "preaching the Gospel of Peace, and bringing glad tidings of good things." (Rom. x. v. 15.)

Hitherto she has carried our thoughts to these good things upward, and *therefore* heavenward.

There is much work for her near home—much that our hands handle, and if for a while we descend from the magnificent to examine the minute—from the Heavens to the Earth—from the Imponderable to the Ponderable—from the creations of God to those which Man too proudly calls his own—let it not be thought that whilst we are thus learning humility, we are neglecting Christianity. Far, very far indeed, be that from any of us.

The Text brings us to the earth, and binds us there; in these bonds we must for a brief space remain; and so remaining, I trust it will be found—we shall all readily acknowledge that things

around us, even where man claims the credit, are from God.

To such things—ay, to the teachings of Birds, Beasts, Earth, and Fishes, our thoughts are now to be directed. They put before us what some may call Trivialties; [Science and Religion, my brethren, do not recognise any things as trifling]; they may seem unsuited to this Sacred Day and Sacred Place; if so—I can but ask for the exercise of that Christian charity which “thinketh no evil,” and remind all of us that,—

“If on our daily course our mind
Be set to hallow *all we find*,
Old friends, old scenes, will lovelier be,
As more of Heaven in each we see.”

There is not however wanting the best authority for thus occasionally withdrawing our eyes from Heaven to earth. Surely the gift of a loved friend is worthy of the receiver's care. David tells us very plainly (Ps. cxv. v. 16), what is the Lord's and what He hath given to us. “The Heaven, even the Heavens, are the Lord's; but *the earth* hath He given to the children of men.”

St. Paul is equally emphatic, when he directs Timothy to “charge the rich . . . to trust in the

living God who giveth *us* richly all things *to enjoy*."
(1 Tim. vi. v. 17.)

'Tis this earth—these riches—this enjoyment,
that are now to be ours. Let us look at the *large gift* in some of its details.

In Genesis ii., v. 7, we read, "The Lord God breathed into man's *nostrils* the breath of life, and man became a living soul." How differently do the wild Indian tribes and the civilized White races treat this early Scripture information. The former by watchful maternal care even from infancy, are tended and taught, whether sleeping or waking, to obey the Laws of God, and breathe through the nostrils. How few amongst the so-called civilized races do this ; they breathe through the mouth, and thus are sown seeds of dental and bronchial and lung diseases—entailing pain and death.

The mouth, with its teeth and secretions, is for the supply of Food to the Stomach ; the Nostrils, with their hairy filaments and secretions of a very different character, are for the separation of mechanical impurities in the air—for the absorption of injurious Gases, and for the warming of the

air that enters the Lungs. The parched mouth—the hollow pale cheek—the consumptive cough, are sad testimonies to the breach of God's law. These ailments are almost unknown to man in his primitive state. Animals too are almost free from them: note how they breathe through the nostrils.

Strange perversity! civilized man breaks the law of his creation, and then man helps man to perpetuate the breach. What are the so-called Respirators but poor attempts to imitate those actions of the nostrils which sift and warm the air; the absorptive power of their secretions man cannot imitate. Except when speech is meant Scripture always describes the breath as The breath of the Nostrils, and therein places strength; for writing of the war-horse, it is recorded—"The glory of his nostrils is terrible."

In the building of the Temple at Jerusalem we read (1 Kgs. vi. v. 7), "It was built of stone made ready before it was brought thither: so that there was neither hammer nor axe nor any tool of iron heard in the house while it was in building." What a contrast with our stone buildings! What loads of stone are taken from quarries where the

chippings might usefully fill up ; and they are allowed to accumulate on the ground where they are not required. How majestic in its silence must that Temple have been in its rearing. I know but of one building, and that a truly noble one, that was built as the Temple was built—every stone prepared beforehand : I mean the Eddystone lighthouse. The illustrious Smeaton, in the large Plates which accompany his account of the failures of previous Lighthouses here, and furnish details of the designing of the present one a hundred years ago, has printed side by side with a view of the finished Lighthouse—the trunk and branch of an oak-tree ; he spoke to the earth and it taught him, for from the study of these, he writes, “I obtained my ideas of gracefulness, firmness, and solidity.” (Smeaton, p. 42.) Mark the piety and teachable character of this great Man. When the Lighthouse was partly erected, he engraved around it : “Except the Lord build the house they labour in vain that build it.” And when the work was finished, upon the last stone set are the words “*Laus Deo.*” (Smeaton, p. 183.)

In prophetic illustration of the mode in which the Creator treats transgressors it is stated thus :—

“I will refine them as silver is refined, and will try them as Gold is tried” (Zech. xiii. v. 9). Again, “Who may abide the day of His coming, for He shall sit as a refiner and purifier of Silver” (Mal. iii. v. 2-3). Isaiah writes, “Behold I have refined thee, but *not* with silver” (Is. xlvi. v. 10) ; Ezekiel (xxii. v. 20-22), “As they gather silver . . . into the midst of the furnace . . . yea I will gather you and *blow* UPON *you in the fire* of my wrath, and ye shall be melted in the midst thereof”

That there was in those days a peculiarity and difficulty in the refining of silver is not only obvious from the words used, but is very marked in contrast with the expression, “I will try them as Gold is tried.” The trial of Gold even in this day is as it seems to have been in Zechariah’s day: a mark upon a certain quality of stone determines true from factitious gold. Therefore the expression has a decisive simplicity.

When, however, we regard the words in reference to Silver and note the emphatic expression of Isaiah, “I have refined thee *but not with Silver*”—the language is singularly apt even in this nineteenth century.

Although the refining of metals has engaged much of the care and thought of men, yet a recently published and acknowledged high chemical authority (Watts' Dictionary, vol. 5, p. 279) asserts—"that the refining of Silver is not by any means so simple a matter as might be expected."

Even now, with all our assumed advance in knowledge, "to be refined as Silver is refined" indicates severe treatment. Judging from the passage in Ezekiel, Silver was then refined as it is now, by blowing air over the last obtained molten compound [and oxidizing the lead]. To witness the process in our day adds much force to the Prophetic Simile.

Many of you may remember that when the International Exhibition of 1851 was contemplated, an almost insuperable difficulty presented itself, in that any building reared as all buildings up to that date had been reared would not be ready, because of the time required and the damp in the walls. Architects and Engineers were baffled and beaten. A Gardener, one whose life had been passed in a library stored with volumes written with the finger of God, astonished all by the novelty and suitability

of his design. Hear his own account of the origin of that remarkable and oft copied Structure.* “Nature was the Engineer in this case. Examine the leaf, says Sir Joseph Paxton, of this Water-lily (the *Victoria Regia*) and compare it with the drawings of the Building, you will perceive it is provided with longitudinal and transverse girders on the same principle that I, borrowing from it, have adopted in this Building.”

Look, too, at those marvellous structures which span the Menai Straits—the one so fairy-like in its aerial graceful lightness—the other so stern in its solid simplicity. To a spider’s web across a garden path we are indebted for the one: and to the structure of bone, such for instance as that in which marrow is found, for the other. Note in this latter how by the adoption of the cellular character of bone the tubular bridge is neither burdened nor broken by its own weight.

Brunel watched the mechanical and chemical actions of the worm which perforates wood in ships. Hence the tunnels which since his day have become numerous.

In the arteries of the human body and bronchial

* See ‘Times,’ 14th Nov., 1850.

tubes of the Lungs we find various sized ducts for the distribution of the air and vital blood to every part of the system: the Gas and Water pipes of our towns are copies of these.

The singularly beautiful and simple adaptation of Valves to prevent the backward flowing of the blood is copied in our Pumps. Nay, so imperfectly have they been copied that I believe a Patent is now in force for a pump valve which is an exact copy of those found in the great veins of the human body.

In the Telescope, the Microscope, and the Camera Obscura how imperfectly is the Human Eye imitated: in the latter we even provide a substitute for the Retina, and in the former what a poor substitute is the diaphragm for the Iris. The Achromatism of the eye how perfect—the attempts at accomplishing the same in our optical instruments how very clumsy, and withal how faulty. For many years has the mechanical ingenuity of men unsuccessfully busied itself in attempts to copy the circularly contractile and expansile motions of the Iris. We have not as yet made even a reasonable approach to them.

A lobster-shell suggested to the thoughtful Watt the mode of curving pipes of malleable sheet metal.

Nature's falling showers of Rain and Hail prompted men to build towers, or use wells, for the manufacture of shot.

You cannot look upon a Wasp's nest without being reminded of its resemblance to paper. The insect breaks up woody fibre by its powerful jaws, and reunites it as paper. Man, by powerful machinery, reduces to a pulp the woody fibre of linen and cotton, and so forms paper. Some Wasps put layer upon layer to gain strength; by a similar process we form card-board.

Who can see the Spider's perfect web without pausing to admire? what is a Fisherman's net but an inelegant copy, and used for a similar purpose, viz., the procuring of food?

The sand-tubes so strongly formed by a kind of worm on our sea-coasts, are as the artificial stone chemically formed, and each year coming into more general use. If we quit the coasts and look to our canals and rivers, how admirably do we find wood and bark framed for insect houses: how many houses here* are framed of timber. Advance in the scale, there is the Bee, with her well formed cells—the Ant—with her house of many rooms; there are

* In Chester.

the Beaver and the Swallow, with their houses of clay ; even Swallows mix pieces of straw with the clay when they find the nests would otherwise crumble away—the Egyptians did this with their sun-dried bricks. You remember how in the compelling of the Israelites to find straw for themselves their burdens were increased. From the Swallow we have learnt to mix hair with the mortar with which the walls of our houses are plastered.

The principle which we find in the sucker of the Boy and the air-pump of the Philosopher, is that which enables flies to walk along glass or the ceiling.

How mechanically imperfect and defective are not our appliances side by side with those the Fishes and Birds supply ?

The form of our ships is obtained from that of fish, and the action of their tails has suggested the rudder. The little Nautilus suggests the sails and the web-footed tribes the oar and the paddle.

The feathering of the Oar and the Paddle is Man's best substitute for Nature's work. It is as a candlelight in sunshine.

Compared with the size and strength of the

Mole and the Rabbit, what are our greatest tunnels? The Slates and Tiles on the roofs of our houses and the Timbers which carry them are most clumsy and cumbersome imitations of the Bones and Feathers of birds.

Who can weave a basket that shall be equal in beauty and finish to a bird's nest?

How much of architectural ornament and artistic beauty are copies of Nature?

Does not all our instrumental music sink into insignificance beside the voices of men and women and birds? In the sting of the Wasp and the tooth of the Serpent we find the barb of our hooks. To raise sunken vessels we do that which the fish does when it seeks to float nearer the surface of the water. Even with the varied framework of the wings of birds before us how poor are our attempts at navigating the air.

In the structure of the Salmon, by which the fish is possessed of such a singular power of leaping up waterfalls, we trace the one Man adopts in the springs attached to carriages, by which they may be said to leap over or surmount obstacles without inconvenience to those who are in them.

Heating Apparatus, the Body. 67

We heat our houses, our large rooms, our places of public resort with water circulating in pipes and delivering in distant corners heat received from the furnace : this too is a lesson taught by the Earth. The Gulf Stream is as the enlarged pipe of a huge heating apparatus : the torrid zone is the Furnace, and one of the distant corners is England.

Our very bodies how wonderful are they ! Time forbids us to dwell upon them, but is there not

In the Hand	..	a Vice,
„ Arm	..	a Lever.
„ Wrist	..	a Hinge.
„ Eye	..	a Telescope.
„ Leg	..	a Crutch.
„ Stomach	..	a Laboratory.
„ Lungs	..	a Bellows.
„ Veins	..	Pipes and Valves.
„ Nostrils	..	a Respirator.
„ Skull	..	an Arched Vault.
„ Teeth	..	Knives, Saws, Wedges and Millstones.

The Bible calls the Earth a “round World :” the word translated *round* in the Prayer-book version of the Psalms means an Orb or Globe ; (Ps. xciii. v. 2), “ He hath made the round world so sure that it

cannot be moved ;" (Ps. lxxxix. v. 12), "Thou hast laid the foundation of the round world and all that therein is." And Isaiah (xl. v. 22) speaking of the Creator writes, "He sitteth upon the *circle* of the earth." For ages it was deemed Heresy to say the world was round. Sailors proved the Bible to be right, and saved Christian men from the Stake.

We read in the Bible (Job xxvi. v. 7), "He stretcheth out the North over the empty place." How very recently have the truth and literal accuracy of these words been established.

Has man found a place on this earth more drear and empty than the North? *There*, literally and truly, is no food for man nor beast anywhere. As revealed in the days of Job, when the North as we understand it had never been explored by man—so it is found now after many a noble attempt to penetrate its icy bonds — *an empty place*. The desolation of the North is perfect desolation.

"Canst thou tell the sweet influence of the Pleiades?" Many years have not passed since this question was answered. The answer does indeed indicate—"a sweet influence." Astronomers tell us that the Sun with all its celestial retinue is in motion round some point or centre of attraction, and that

point is—where “the Pleiades” are. Observations made during the current year confirm this.

In the Bible Man is asked, “Whereupon are the Foundations of the earth fastened?” For centuries—ay, for three thousand years—vague surmises on this question occupied the minds of men although it had been revealed that the Creator “hung the earth upon nothing.” They talked about the Pillars of Hercules as boundaries: foolish conjecture intruded into the province of sober observant thought. It was not until the fall of an apple at the feet of Sir Isaac Newton (A.D. 1700) did the part of a magician’s wand, bringing light and harmony into the dark and disordered conjectures of years, that the law which binds the Planets as one was enunciated, and men knew—“That earth self-balanced on her centre hung.”

Man for the purpose of design in manufactures may seek to the Kaleidoscope and the combinations of Geometric forms. The patterns obtained from these bear to those which Nature’s perfect and inexhaustible stores supply the ratio of a solitary beam of Sunshine to the total flood of Solar Light.

This question of meditation upon design is one that the Compilers of our Church’s Liturgy have

deemed very appropriate for Whitsunday when the descent of the Holy Spirit is the prevailing thought. On that day they have selected the glorious eucharistic Psalm (civ.), teaching us—as these Lectures are intended to do—to infer the Spiritual from the Natural and Visible.

These (chiefly mechanical) are only selections from Nature's perfect stores. Man cannot equal, and he certainly cannot surpass or improve upon the Creator's Works. Truly they "are marvellous: in a wisdom we cannot attain unto" has God made them all. Surely you will agree with me—that if during the last five thousand years such in these particular lines have been the fruits of men's labours we may generalize and say—"There is no work, nor device, nor wisdom, nor knowledge" of man that will not advance the glory and proclaim the power and goodness of God. Can we thus observe and not grow in reverence and love for our Creator? To abstract the mind from emotion would be impossible if it were endeavoured, and would be foolish if it were possible. Whatever withdraws us from ourselves: whatever makes the works of God predominate over those of men teaches humility and keeps down pride—advances

religion and roots out atheism—fosters piety and destroys selfishness.

Is *he* worthy of the name of Man who in the presence of facts such as these can boast of his own *creative* power? Let such a one “go to the Beasts and they shall teach him—to the Fowls of the air and they shall tell him : let him speak to the Earth and it shall teach him—to the Fishes of the sea and they shall declare unto him.” But for our parts, as men and as Christians, let us feel and know with Job—“That in all these things the hand of the Lord hath wrought them.”

If thus, my brethren, we find that all inventive Science can do has been far surpassed by what the Creator has done, we may safely conclude that all Science ever can attain—every new discovery, every new invention—every new branch—must minister to the Glory of God. We may rely upon it—it will be hereafter as it has been heretofore and is now—the works of Men most praised are but imperfect copies of those works of Him which have been from the beginning of the world. “How manifold are those works ! in wisdom the Lord has made them all : the earth is full of His riches” (Ps. civ. v. 24).

What overpowering thoughts and feelings these truths produce. How they teach us to love and fear our Creator. When then we review the past—when we consider the present and when we anticipate *that* Future when all the goodness of the Lord shall pass before us, and “joy and gladness shall be found therein, thanksgiving and the voice of melody,” we may surely look at the lessons in Mechanics we have learned from “the Beasts—the Fowls of the air—the Earth—and the Fishes of the sea,” and from the inmost heart say—

“O God ! O good beyond compare !
If thus Thy meaner works are fair,
If thus Thy bounties gild the span
Of ruin'd earth and sinful man,
How glorious must the Mansions be,
Where Thy redeem'd shall dwell with Thee !”

LECTURE IV.

LIGHT AND ELECTRICITY.

GENESIS i. v. 3.

3. "And God said, Let there be Light: and there was Light."

THE COLLECT.

"God, who didst teach the hearts of thy faithful people, by the sending to them the light of thy Holy Spirit; Grant us by the same Spirit to have a right judgement in all things, and evermore to rejoice in His Holy comfort; through the merits of Christ Jesus our Saviour, who liveth and reigneth with thee, in the unity of the same Spirit, one God, world without end. *Amen.*"

TO read (not simply glance at or look over) the Works of God is to find ceaseless pleasure. Turn which leaf you will: wander in the kingdoms of Minerals, Vegetables, or Animals: peep where you can through the boundary fence of the Spiritual Dominion still there are charms which no other Study can offer.

Endless variety and yet close relationships;

beauty, perfection and harmony, provocative of love, admiration, and unity.

Unwearying, and yet incessant : unchanging and yet no monotony : far beyond the wisest man the World ever saw, and yet much easily read by one who knows no Alphabet save that learnt from the ever open books of Nature and Revelation.

'Tis strange then, that whilst we pursue with a zest that knows no satiety,—with an energy that never flags,—with a love jealous of a divided affection,—every social fashion,—every political move : whilst we bow down ourselves in the House of Mammon, unconscious that “unless above himself he can erect himself how poor a thing is man ;” whilst we are doing all this for at best perishing treasures, and very often for perplexing and harassing cares, there are under our eyes and within our reach methods and means without number and without end by the use of which

“Man may wander away and away
Into regions yet untrod,
And read what is yet unread
Of the manuscripts of God.”

From thence he may bring back and tell of wondrous works :—treasures beyond count,—worlds

undiscovered,—knowledge ungathered,—principles unapplied,—and causes, combinations, and consequences into which even Angels love to look.

If the Sabbath was made for man and is indeed the day on which “he should rejoice and be glad” it will be by his knowing more and more of God.

Things revealed and things known and those things partially revealed and partially known—these teach God. All His Works teach Him.

He is as manifest in the still calm breath of the Summer’s air as in the Monsoon or the Tornado: in the water made wine as in the raising of the dead or the standing still of the Sun upon Gibeon: in the cloud that rests upon an English mountain peak as when “He came down in the sight of all the people upon Mount Sinai in thunders and lightnings and a thick cloud” (Ex. xix. v. 11, 16).

We therefore who are Christians indeed and in truth greatly err in seeking to know God *only* in His book of Special Revelation and *only* in the scheme of Salvation for fallen Man. By all means and above all things let us know and feel and possess Jesus Christ as “the way the truth and the

life." Let us *never never* forget, but daily and hourly live in His Light who is our Light. Let us attain to this by attaining to a strengthening of Faith or Trust in Him through qualifying to appreciate Him in His higher development by studying Him in His lower.

One such study seems specially to be opened out by recent researches in connection with the first act of Creation.

"Let there be Light" are the first revealed words of God; and in that last chapter of the Bible, which, closing the special Revelation of God to man, tells of the eternal home in Heaven where there shall be no more curse (Rev. xxii.), still is "Light" the charm; for "there shall be no night there; they need no candle, nor light of the Sun; for the Lord God giveth them Light." Again, what are the last words our Saviour Jesus Christ utters? As in the beginning so in the end it is still "LIGHT."

The words are (Rev. xxii. v. 16), "I, Jesus, have sent mine Angel to testify unto you these things in the Churches. I am the root and offspring of David, and the bright and morning STAR."

How comforting the Phrase—"a bright and morning STAR"—the very last word; a bright symbol

—bright prelude of a day which shall know no night: cheering assurance that our dear and trusted Lord is both able and willing

“From the thick film to purge the visual ray,
And on the sightless eye-ball pour the day.”

LIGHT then is the beginning and ending, the Alpha and the Omega of Scripture. LIGHT!—that in which alone God can dwell ; for where He is there can be no darkness at all. LIGHT ! the name that Jesus loves. How was His presence on earth first revealed?—“A Star” appeared—a Light shone round about. How did Prophets write of Him? “There shall come a Star out of Jacob” (Num. xxiv. v. 17). “I the Lord will give thee for a Light of the Gentiles” (Is. xlii. v. 6). How was He named? The beloved Apostle again and again speaks of Him as a “Light”—“a true Light”—“the Light of the World and the Light of Men.”

If we look to the Holy Spirit is not His work especially that of enlightening? Look as you will into the characteristics of the Godhead, and you will find all-pervading—“LIGHT.”

How tersely does the Church profess her Faith—
“God of God, Light of Light, very God of very

God." Strange juxtaposition ! The very words—"God"—in which all the Godhead is usually centered, are as it were the Supporters of the Divine Armorial Bearings. "LIGHT of LIGHT"—this is name, this the Tabard, in which the Christian Church loves to look upon the Lord. What a remarkable Trinity of Phraseology centers here on Light. There is too a Trinity of Fact. In the analysis of the Solar Beam; Heat and Actinism are the Supporters, they travel as the body-guard of a Sovereign; for they keep the way. One on one side and the other on the other. Wherever Solar Light *freely* goes, these two attendants in this manner seem to be guarding the path.

If we note the use of the word—Light—in those books of the Bible from which our two previous texts have been taken, how remarkable that "the Heat from which nothing is hid"—is only named once in the Psalms, but Light occurs fourteen times. In the book of Job "Heat" is named three times, but "Light" thirty times. There is not therefore any created "thing" (if "thing" for the present it may be called) that brings us so near, so close, so into the very presence chamber of our God, our Saviour and our Comforter—as Light.

Does not St. Paul (1 Tim. vi. v. 16) tell us that God "is dwelling in a Light" and David says "The Lord covereth Himself with Light as with a garment" (Ps. civ. v. 2).

Thus *Light* is a type—a leading—if not *the* leading type of those which place God before Man. Wherever a range over which studies should extend is varied and large the foundation of mental order is laid in a system of types. Through types the Universe is classified and read by Man. The studies of the Naturalist and Chemist would be chaotic were it not that types concentrate the mind and classify the objects. The Naturalist uses an individual as the type of a species—a species as the type of a genus—a genus as the type of a family. The Chemist has his chemical, mechanical, and molecular types. How beautiful in simplicity, how suggestive in unity, is the type—**LIGHT.**

The Light by which we see and move, what is it?—with what is it associated? To answer these, yea even to dwell upon this Scriptural type of God, we can only deal with it as present knowledge vouchsafes.

Light—"the offspring of Heaven first born"—is NO MATTER, it is NO CREATED THING—it is rather a created state. When God in the beginning made the Heavens and the Earth and commanded Light to shine out of darkness a change came over what Man considers to be an all-pervading ether; and the life in which God delights manifested itself in motion, and waves sped on and on into the far recesses of the Universe. Light then was. It came neither from Sun nor Moon nor Star. Isaiah puts it: "I form the Light,—I make Peace" (xlv. v. 7). Light and Peace—Darkness and Evil.

That there might not be wanting a symbol of Light—a sign from which to calculate when Light would be, when it was going and when returning—God on the fourth day created the Sun and there ordained a Palace in which Light might dwell.

Such warnings of a coming event is part of the system on which the Creator deals with man. What is Prophecy but these warnings, and what is History but an interpretation of them? What were the preachings of Noah? What the plagues of Egypt? What the signs preceding the dispersion of the Jews? What the Revelation of St. John

the Divine? Warnings, symbols—that an appointed day of the Lord draws near and more near.

A noble Palace the Sun is. In the Heavens above or in the Earth beneath what object approaches in glory to the Sun? The eye and soul of Man acknowledge its greatness; every people has sounded its praise.

How well the Psalmist describes the daily appearance of the Sun as “A bridegroom coming out of his chamber, and as a strong man rejoicing to run his race” (Ps. xix. v. 4). And again, “Thou hast prepared the Light and the Sun” (Ps. lxxiv. v. 16).

Yea! how many are the people who worship “the Sun that with surpassing glory crowned looks from his sole dominion like the God of this new world.” Although called Fire-worshippers, it is not so. What they do worship is Light—Brightness—this is to them a visible type of Heaven.

All life, even vegetable life, is only in Light. Man thinks he can chemically explain how by Light the atmosphere is influenced, and so green leaves are enabled to commence and continue that process by which plants live and the air is purified. Be his explanation what it may, it is true that the

organism of the leaf is only capable of its natural life in the presence of Light. Mark how Flowers wait upon the coming Solar light. The most common English flower—the one which in foreign lands so gladdens the heart and brings the loves of home around—the “wee, modest, crimson-tipped flower”—its worship, its nature, and its name are one. Mark too how vegetation in the dark struggles to any crevice through which perchance Light is entering.

But higher far than these : to those who have watched over infant life the worshipping of Light is no novelty. The child gazes at it with a reverential love as if Light were a Heaven—realizing a thought almost beyond poetic license, that

“The Soul that rises with us,—our Life’s Star,
Hath had elsewhere its setting,
And cometh from afar :
Not in entire forgetfulness,
And not in utter nakedness,
But trailing clouds of Glory do we come
From God who is our home ;
For HEAVEN *lies about us in our infancy.*”

To dwell alone is desolation : all we know and feel of the Universe and everything in it harmonises with the view “it is not good to be alone.”

Whilst the Sun is the palace of Light this royal resident has attendants—Heat is one. Where Light is there Heat is, and what Heat does that Light is said to do. This is a view which has perhaps been too generally received. Science can now separate the Heat of the Solar Beam from the Light. It can hold back the one and send forth the other. It can find the Heat in its darkened state as powerfully operative as when with its royal master.

The Light of which we speak is as much a Trinity in Unity as is the Solar Beam itself. Its Trinity consists in the colours Red, Yellow, and Blue. Future generations may find Trinities in the separate Unities of Heat and Actinism. This fundamental mystery of our faith is wonderfully illustrated in Nature. Even those who regard the investigations of chemical, physical, or natural phenomena from a purely scientific eminence are constrained to admit of a Trinity in Unity. Within the current year it is by them assumed as demonstrated that “notwithstanding apparent difficulties, a threefold unity,—viz., a unity of power or faculty, a unity of form, and a unity of substantial composition—does pervade the whole *living* world.”

And in that world in which Man is unable to recognise any form to which he can give the name of life—a *Trinity* of solid liquid and gaseous constitutes the *Unity* of matter.

Our faith teaches us that God the Father is our Maker. [We see him not, but like Heat there is nothing hid from the eye of the Father]. God the Son is our Redeemer. [He is the Light that cometh into the world]. God the Holy Ghost is our Sanctifier. [He is Actinism : by him Divinity is photographed on the soul of Humanity]. Thus with the Trinity in the Solar Beam. In such aspects as these, how appropriate is the emphatic invocation in our Litany, "O holy, blessed, and *glorious* Trinity."

Let us for a brief space turn from our yet unfinished considerations of the teachings of Light, to some of the phenomena of Current Electricity. The instruction to be gathered from *its* analogies is very wonderful.

To generate this current we are in the presence of a Trinity in Unity. I know not of any means by which Electrical Phenomena can be artificially developed unless *three* elements at least enter into

Extent of Influence of a Kiss or Tear. 85

the creative source. The *three* may vary, but the result is one—one speeding thought—one flash—one distant voice speaking to the eye.

Look at the simplicity of the agent and the magnitude of the result. One human kiss, one human tear-drop, and the responsive Light quivers on the opposite Atlantic shore—revealing thoughts that are cradled here. Of the power, the charm, the influence of a kiss or a tear past generations may tell, but it has been left for recent days to extend that influence from Continent to Continent.

If thus with a speed that annihilates time and space, and with instruments so defective—so heavy—so sluggish in their movements as earth-made ones must be—a single kiss or a single tear can call forth a power to bridge the ocean : Who need doubt that the secret prayer—the heart's ejaculation, can bridge the ethereal Ocean of the Universe, and reach God in His dwelling-place in Heaven as soon as conceived by man on Earth ? With such a Fact before us there needs no modification nor explanation of our Saviour's words—“ Our Father which art in Heaven.” In Heaven,

the Lord God Omnipotent reigneth and it becomes man to think of Him as there.

Another illustration of this instantaneousness of intercommunication without reference to distance may be inferred. An Observer was attentively examining the Sun through a powerful Telescope : a change passed over the Solar surface and true to the very instant the photographic records marked that a *thrill* had gone to the extremities of our System—a Magnetic Storm had passed over the Earth. We are conscious of the swifter than Lightning speed of thought, why then cannot we admit that these thoughts become the exciting Agents and write their records in the book of God's remembrance? The Experimentalist in Science has no strain upon his faith herein, for his hands are daily bringing to pass—wonders marvellous and incredible to others but quite familiar to himself. He reads with that assurance a crucial experiment produces of the instantaneous answer to prayers such as the Bible associates with the names of Solomon, Elijah, Hezekiah, Daniel, Zacharias, Cornelius and others, and he feels, with Solomon, that these prayers have indeed gone to "Heaven, the dwelling place of God" (wherever

that may be), and that they have been answered from thence, and men have felt they have received the answers here on Earth.

The Volume of Scripture tells us oft and much of the mission of the Comforter—of that Holy Spirit who should take of the things of Christ and shew them to the Believer. The Phraseology in which these aids to the working out of our Salvation are revealed, is remarkable. The acceptance of it has been an act of Faith, and I am not aware that hitherto analogy has supplied an effective illustration. No one need be surprised at this, for Earth deals with material and not spiritual questions, and St. Paul says, “the natural man cannot know *them*—they are only to be spiritually discerned.”

One however of the Marvels of Science now steps forth, visibly satisfying us that in the Creator's world of Facts there is an analogy even with this mysterious one of Revelation.

Electrical currents are possessed of a property to which the term “*Induction*” or “*Influence*”—is applied. Strange this property is in all its aspects. A concentration of the light, which a general enunciation of its Principles supplies, upon the teachings

of Scripture relative to the influence of the Holy Spirit will not be without instruction.

If a coil of wire, protected and fenced by the very best appliances yet devised for preventing the escape of passing electrical currents be laid upon the floor of a room, and if a similar coil be laid upon the floor above; then, although there be no connection between them, and they are entirely separated by the floor and room, yet whatever Electric Pulsation passes along the one will have its simultaneous response in the other. Or, assume the two cables which cross the Atlantic to be side by side—each in its sheath, through which current Electricity cannot escape—still its Influence will be felt. Each wave that passes along the one wire as battery contact is made will infuse for a time life into its neighbour, with which it seems to have no electrical connection. Like the dry bones in the valley of which Ezekiel wrote (xxxvii. v. 7), there will be “a noise” and “a shaking,” and the dormant wire will live and speak.

Marvellous influence this!—the pulsating life man puts into the one wire, though to us apparently concealed and kept there, yet lives not for itself. It does man’s bidding; realising at the same

time the mysterious truths such as the influence of the Holy Spirit may have over the Spiritual faculties of the faithful Soldiers and Servants of Jesus Christ.

If there be one department of Electrical Science more inexplicable in its effects than another it is that which embraces the consequences of this property of "Influence ;" and if there be one of the daily and hourly mysteries of our Religion fraught with more important consequences than another it is that which the Holy Spirit can exercise over our Spirits.

To return to Light : Owing so much to Heat : seeking for it when we seek to revive a sinking life : compensating for the absence of Light by the artificial production of it through the agency of Heat : living in fact on earth without Light, but unable to live without Heat : it is strangely instructive that when the Bible teaches of God and of Heaven it is through the symbol of Light, but never through that of Heat.

Yea ! more instructive still : our blessed Saviour is especially named by the Prophets to protect His people from Heat. Isaiah calls Him (xxv. v. 4), "A shadow from the Heat ;" "the Shadow of a Great

Rock in a weary land" (xxxii. v. 2), and was not "the form of the Fourth," who protected the three children "walking in the midst of the Fire"—like "the Son of God"? (Dan. iii. v. 25).

A few illustrations briefly given will be suggestive enough and enable your memories to recall how very many there are.

"God is Light and in Him is no darkness at all (1 John i. v. 5). The commandment is a Lamp, and the Law is Light (Prov. vi. v. 23). The Lord is my Light (Ps. xxvii. v. 1). Lift up the Light of Thy countenance (Ps. iv. v. 6)—the path of the Just is a shining Light (Prov. iv. v. 18). Ye are the Light of the World (Matt. v. v. 14). Let your Light shine before men (Matt. v. v. 16). Put on the armour of Light (Rom. xiii. v. 12). Walk as children of the Light (Eph. v. v. 18). Christ shall give thee Light (Eph. v. v. 14). O send out Thy Light and Thy Truth (Ps. xliii. v. 3). Walk in the Light (Is. ii. v. 5)—Loins girded and Lights burning (Luke xii. v. 35)—cometh down from the Father of Lights" (James i. v. 17).

So general the expression—so marked the difference—so emphatic the assertion—so pointedly observed through the whole Bible, we ought to find

in the Physical properties and characteristics of Light much that instructs the observer of them in the singularly precise use of the word in Scripture.

By Light we see. If it is wished to express a state of ignorance or hopelessness or sinfulness it is called one of darkness or blindness. The dwelling of outcasts from Heaven is "a Pit"—"a place of thick darkness." When the plagues of Egypt were felt, "Darkness" in the dwellings of the Egyptians was contrasted with the fact that all the children of Israel had "Light" in theirs (Ex. x. v. 22, 23). Job (x. v. 21) calls the grave the land of "darkness;" indeed, the instructiveness of Light and Darkness, although present to many of the Scripture Writers, is by none more frequently dwelt on than by Job. He flees to Light as a place of happiness: he shuns Darkness and all relating thereto as misery. The oldest of the Scripture Writers dwells much on Light: the First Act of Creation was Light—the closing of Scripture is with Light. So abounding with that which enables us to see: well may Scripture be a Lamp to our paths; well may the Christian pray for the Light of its shining—especially when entering the Dark Valley of Death.

We love to regard Jesus Christ as He that gives to the weakness of Spiritual vision—true Strength—the penetrating intensity of the Electric Light, and not the shadowy flicker of a lambent Phosphorescent Flame, and therefore we ever picture the BRIGHTNESS of His face.

“Is it not strange, the darkest hour
That ever dawned on sinful earth,
Should touch the heart with softer power
For comfort, than an angel's mirth?
That to the *Cross* the mourner's eye should turn
Sooner than where the *Stars* of Christmas burn?

“Sooner than where the EASTER SUN
Shines glorious on yon open grave,
And to and fro the tidings run,
‘Who died to heal, is ris'n to save?’
Sooner than where upon the Saviour's friends,
The very Comforter in *light* and love descends?”

“Yet so it is:”

Over the Spiritual faculties of His disciples comes a Vision of bright glory as they feel drawn nearer to Him *on the cross*. After close heart-communing with the Saviour they see—or rather feel that they see—glimpses of a world more fair, more peaceful, more light than this. I believe there is more than simple feeling here. There is here that which lies too deep—far far too deep even for repentant human tears. It may not reflect inward

Heaven's *pure* brightness, but there is no mistake that that *pure* brightness is there—eclipsed it may be, and “seen but dimly through earthly mists and vapours.”

“Alas ! dearly we pay for our primal fall,
But some flowerets of Eden still we inherit,
Tho’ the trail of the Serpent is over them all.”

When Moses had been with God and returned to the Israelites his face shone as in darkness certain substances glow with rainbow beauty derived from the light to which they may have been for a time exposed. Even these secondary beams, radiant doubtless with the Fluorescent Blue of Heavenly Glory, were too bright, too pure for Earth, and Moses veiled his face as “with both their wings the Seraphim do who stand in the presence of the Lord” (Is. vi. v. 2).

When the disciples were with Christ at the Transfiguration that on which their amaze centered was not Heat but (even in excess) Light, with which to us Heat is apparently always united. We read, “His face did shine as the Sun and His raiment was white as the Light” (Matt. xvii. v. 2). Not one word of the intensity of Heat which this “shining as the Sun” might seem to imply. Again :

in that second Spiritual appearance, when what is called "The conversion of St. Paul" took place, in each of the three narratives (Acts ix. v. 3 ; xxii. v. 6 ; xxvi. v. 13) we read of "a Light from Heaven above the brightness of the Sun."

It seems that what the Holy Spirit thus teaches is :—that in or through Christ "is made manifest God" (Eph. v. v. 13)—that Holy Scripture with all its fulness is to bring man as near to God as he can bear—to see Him in everything and everywhere—to love Him for all we see and feel and possess—to be near Him through being near Christ. This is one of the visions and works of Faith.

When the Astronomer seeks to gaze upon the Sun he now avails himself of recent discoveries in Science and letting the Heat which is for earthly use, and perchance for the destruction of the earth itself be absorbed in lenses and prisms, he can painlessly and without danger receive the Light of the Solar Beam.

Thus is Jesus Christ to us—in Him are stayed the judgment, the pains, the punishment with destruction from the presence of the Lord, in everlasting burnings with devouring Fire, and yet no Light but only the blackness of darkness. These

being stayed—absorbed—LIGHT passes on and His faithful trusting disciples are in Heaven.

But LIGHT itself is not simple mono-chromatic whiteness, brightness : like Joseph's coat it is of many colours. If in one Scripture character more than another Man has freely revelled in comparison with our Saviour Jesus Christ, may not the many colours of Joseph's coat be *the Light* : every colour we see is in Light. All that gives beauty to the substance or pleasure to the eye—every tint and every glow is ours through the purity of the compound whiteness of Trinitarian Light.

We as much fail in artificial imitation of Solar Light in its purity and mildness as we fail in our Phases of true religious Faith, when by any concoctions of human skill we seek to reconcile the eternal attributes of the Almighty. Only in Christ can Man see the perfection of these : only in Solar Light can Man see the perfection of Beauty in Nature.

Again, when we examine the indirect language of Scripture : if Evil is pictured in colours—if it brings itself within the light of God—the purity of whiteness becomes the iniquity of redness.

“The *Scarlet*-coloured Beast, (Rev. xvii. v. 3) and the great *red* dragon” (Rev. xii. v. 3) in the book of Revelation; also in the same book (Rev. vi. v. 4) “to him that rode upon a *red* horse was given to take peace from the earth and that men should kill one another.” Moses prescribes that the Water for cleansing defilement should be that in which were sprinkled the ashes of a *red* heifer, (Num. xix.); the Sea in which the Egyptians were drowned, and through which the people of God passed safely, was the *Red* Sea. The people who troubled the wandering Israelites, and would not let them pass over their land (Num. xx. v. 21) were the Edomites: Edom means *Red*. Of them David in two Psalms (lx. and cviii.) (rejoicing in their subjection—*i.e.*, in the subjection of a *red* people) writes, “over Edom will I cast out my shoe.” (See also Is. lxiii. v. 1-4, and Ob. i. v. 8, 9, 21.) Who valued not the birthright and the blessing?—“Esau” (Gen. xxv. v. 25)—he was a *red* man, and the Father of the Edomites, (Gen. xxxvi. v. 9). For what did he sell the birthright? For a dish “of *red* pottage” (Gen. xxv. v. 30). And when we look back to Creation’s day how consistent, even in this question of colour, is the Bible.

The name *Adam* is "*red* earth." The Furnace in which the Holy Children were cast was a burning *fiery* furnace, and out of it they were delivered.

Our sins as *Scarlet* (Is. i. v. 18) are to be made White. The grandeur and glory of great ones upon earth is the being clothed in *scarlet* (Dan. v. v. 16); the purity of Heaven's clothing is—Whiteness (Rev. vii. v. 9).

So (as read by modern Science) even the Christ could not be crucified. Who knows but the felt influence of Divine Purity needed that ere Man could crucify Him, He should be clothed in a *Scarlet* Robe? (Matt. xxvii. v. 28).

When we look upward and heavenward, the tint is *Blue*. The Sky is *Blue*. It would seem that the first act of Solar Emanation is—to proclaim its heavenly birth in that singular manner in which Experimental Science within the last few months has shown that Light acts upon highly attenuated Vapour, viz., by a diffusion around of a beautiful *Blue*.

The very Throne of God (Ez. i. v. 26) was as the appearance of a *Sapphire* Stone, i.e. of a beautiful *Blue*. When Moses and the Seventy went up

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into the Mount they saw as it were the paved-work of Sapphire Stones (Ex. xxiv. v. 10) all heavenly, and therefore *Blue*. In that noble Hymn beginning, "Ride on, Ride on in Majesty," we find the lines :—

"The Father on His *Sapphire* throne
Expects His own Anointed Son."

When Haman thought to have destroyed the Jews and was himself hanged we read that Mordecai (a Jew) "went out from the presence of the king in royal apparel of *blue* and white" (Esther viii. v. 15), and associated with this fact are the words "The Jews had Light and gladness and joy and honour." "The Robe of the Priest's ephod all of *blue*" (Ex. xxviii. v. 31). "The Golden Plate engraved with Holiness to the Lord" shall be put upon *Blue* and "worn in front of the Mitre on Aaron's forehead." We must pause: illustrations crowd the pages of Scripture. (Ex. xxviii. v. 36, 37.)

[There is one illustration not a Scripture one :— consider in how many towns of this country our pious forefathers provided for the moral and religious welfare of the young in *Blue* Schools.]

The Experimentalist in Physical Science can readily separate the elements of Solar Light. In

this separation he can with unerring accuracy determine how much Heat each colour contains. Comparing colour with colour, in *Red* is most Heat, in *Blue* is none. Is it not strange that Men should associate earthly honour with *Scarlet*, and equally strange that heavenly associations are with *Blue*? Strange too, my brethren, that not only is there no Heat in Solar Blue, but that nowhere to my knowledge, does the Bible refer to Heat in Heaven. (What a contrast with the Heavens of men's imaginings!) On the contrary; we read in Isaiah (xlix. v. 10) "They shall not hunger nor thirst neither shall the Sun smite them," and in the Psalms (cxxi. v. 6) "The Sun shall not smite thee by day nor the Moon by night," and in the Revelation of St. John (vii. v. 16), "They shall hunger no more neither thirst any more; neither shall the Sun light on them, nor any Heat." [Also Is. lx. v. 19. Rev. xxi. v. 23. xxii. v. 5.]

Science during the last few years has experimentally established facts suggestive under these circumstances. For it has been found that Heat passes through Dry Air, and is in no degree whatever absorbed. Is not Dry Air illustrative to us of Spiritual Being?

If, as was stated in a former discourse,* Heat was created with the Sun, and Light was only associated with it there; then may we not expect when "the Elements melt with fervent Heat, when the Earth also and the works that are therein shall be burned up" (2 Pet. iii. v. 10), that Light which is but as a Lodger shall return to its native home and remain?

How on this subject do we read in the Bible? The Apostle Prophet St. John (Rev. xxi. v. 23), describing the new Heavens and the new Earth writes:—"The city had no need of the Sun neither of the Moon to shine in it; for the glory of God did lighten it and the LAMB is the LIGHT thereof," and again (Rev. xxii. v. 5), "There shall be no night there; and they need no candle neither Light of the Sun for the Lord God giveth them Light." All LIGHT—nothing but LIGHT in Heaven.

On this earth however not the human body only but even the human Will is "bondsmen to the Dark." Let there be never so much, or never so little Heat "from which nothing is hid," still of the Animal World it is as true as of the Vegetable

* Page 11.

—it is only capable of its vital powers in the presence of Light.

For Sleep, we may or may not increase Heat but we exclude Light. Man may slumber on in some long trance through an interval gloom—Heat may wax or wane; in his slumber he heeds it not. How many a Tale does every Winter tell of the Sleep of Life silently gliding into the Sleep of Death.

Sometimes the Tale is :—That the Heat grew intenser, and therefore the material body passed from human ken, and there was no waking on Earth.

At other times the Tale is :—The Sleep of Rest crept over the Wanderer on the Snow-covered Moor—the Heat of Life radiated away, and so—unconsciously;

“From the burden of the flesh and from care and fear released,”

The Sleeper passed to—

“Where the wicked cease from troubling and the weary are at rest.”

Sleep then may seal the eye-lids : Heat opens them not : but let HEAVEN'S SUNLIGHT play upon

those eye-lids—the Sleeper awakes as though conscious of an inward ray.

When “Death—Sleep’s twin brother,” shall close those eyes that they know neither day nor night how shall they be opened? LIGHT—the Sun’s great anti-type—the REDEEMER—shall be both an outward and an inward ray: “The intervital gloom is ended and He shall come.” Isaiah tells us the remarkable words the Redeemer shall then say are: “Arise, shine, for thy LIGHT is come and the glory of the Lord is risen upon thee.” (Is. lix. v. 20; lx. v. i.).

Be it then the taking of Earthly Rest in Sleep when “Life is but darkened in the Brain”—or be it that “God’s finger touches us and we Sleep;” still, when LIGHT, which in each case is the true Light shineth on the EYE—that only visible type which Scripture gives man in his person to possess of the Omnipotence, the Omniscience, and the Omnipresence of his Creator*—there is realised by the children of the Light and of the day—(for we, brethren, as Christians are not of the night nor of darkness)—the deep truth contained in such emphatic exhortations as “Awake thou that sleepest

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and arise from the dead, and Christ shall give thee"—(Marvellous gift)—LIGHT. Not LIFE (observe) but LIGHT. (Eph. v. v. 14).

In that which relates to the *Spiritual* welfare of the human race—[and it is *Spiritual* welfare with which the Bible is concerned—Physical truths are only incidental]—there is an extraordinary continuity in the Science language of Scripture from the beginning to the end. Can we doubt that—

"As little children lisp and tell of Heaven,
So thoughts beyond their thoughts to Scripture Bards were
given,"

And not doubting, think you man can live day by day amidst such Physical and Revealed Testimonies of the nature of God and the requirements of His Will and not be influenced for good in meditating upon them and for evil if he pass them by? Our blessed Lord and Saviour at the very commencement of His public ministry (Matt. v. vi. vii.), suggested to His hearers considerations which involved "Salt, Candles, Treasures, Moths, Rust, Fowls of the Air, Lilies and Grass of the Field, Fruit, Thorns, Figs, Thistles, Foundations of Houses, and Rain." We are not therefore warranted in neglecting *them*, and in feeling that for

doing so there is any justification. To plead that we are occupied even in considering our Lord Himself does not excuse disobedience to an obvious command. Under such circumstances the rebuke of Samuel to Saul, when he (Saul) "feared the people and obeyed their voice," applies in all its literal force : "Hath the Lord as great delight in burnt offerings and sacrifices as in obeying the voice of the Lord? Behold! to obey is better than sacrifice and to hearken than the fat of Rams." (1 Sam. xv. v. 22).

It is time to pause : the Bible is still a Mine of much unexplored Spiritual wealth. Science (if carefully used), an ever ready Tool with which Men

"There may delve for richer gems
Than the Stars of Diadems."

The Rock that Moses smote (Num. xx. v. 11), did not yield a more welcome and abundant draught of refreshing water than will the Bible-Rock of precious ore. But "the kingdom of Heaven suffereth violence, and only the violent take it." (Matt. xi. v. 12.) Therefore the Rock must be smitten : *then* veins of glistening treasures will gladden the eyes. Pieces from such have been

brought to you, and if they be of the worth which no partial analysis has assigned, take them to your inmost Spiritual Homes. Let them set a mark upon your lives, and so try them "as Gold is tried." And may they be found "lamps to your feet and lights to your paths—shining day by day brighter in your hearts and bringing there the Light of the knowledge of the glory of God in the face of Jesus Christ" (2 Cor. iv. v. 6).

THE END.

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